

poly(tetrafluoroethylene)



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poly(tetrafluoroethylene)

(PTFE)

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Properties

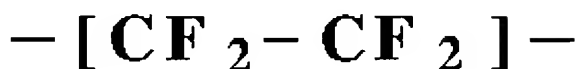
Repeat Unit

Melting temperature: 327°X.



Amorphous density at 25°C: 2.00 g/cm³.

Crystalline density at 25°C: 2.30 g/cm³.



Molecular weight of repeat unit: 100.02 g/mol.

[Typical physical properties](#)

Description

Polytetrafluoroethylene (PTFE) is a highly crystalline polymer which is very resistant to attack by corrosives and solvents. It also has extremely good thermal resistance at temperatures up to 250C. Polytetrafluoroethylene is used in a broad range of applications, including gasketing, pump parts, bearings, and anti-stick applications.

Suppliers

[Ausimont](#)
[DuPont](#)

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MatWeb, The Online Materials Database

Overview - Polytetrafluoroethylene (PTFE), Molded

Subcategory: Fluoropolymer; Polymer; PTFE; Thermoplastic

Close Analogs:

Click button for specific proprietary grades that belong to this Overview class.

Proprietary Grades

Please be aware that some proprietary polymers may not be listed because they fall into more than one class or because of ambiguity in manufacturer's information.

Key Words: Fluoropolymer; Plastics, Polymers

The property data has been taken from proprietary materials in the MatWeb database. Each property value reported is the average of appropriate MatWeb entries and the comments report the maximum, minimum, and number of data points used to calculate the value. The values are not necessarily typical of any specific grade, especially less common values and those that can be most affected by additives or processing methods.

Physical Properties	Metric	English	Comment
Density	2.15 - 2.3 g/cc	0.0777 - 0.0831 lb/in ³	Average 2.17 g/cc Grad Count = 3
Apparent Bulk Density	0.36 - 0.91 g/cc	0.013 - 0.0329 lb/in ³	Average 0.64 g/cc Grad Count=2
Water Absorption	0 - 0.03 %	0 - 0.03 %	Average 0.0042% Grad Count = 2
Linear Mold Shrinkage	0.01 - 0.058 cm/cm	0.01 - 0.058 in/in	Average 0.03 cm/cm Grad Count = 2
Mechanical Properties			
Hardness, Rockwell R	58	58	Grad Count =
Hardness, Shore A	98	98	Grad Count =
Hardness, Shore D	50 - 59	50 - 59	Average 55.1 Grad Count = 1
Tensile Strength, Ultimate	10 - 43 MPa	1450 - 6240 psi	Average

			33.6 MPa; Grad Count = 3
Tensile Strength, Yield	9 - 30 MPa	1310 - 4350 psi	Average 11.6 MPa; Grad Count =
Elongation at Break	50 - 650 %	50 - 650 %	Average 400% Grad Count = 3
Tensile Modulus	0.4 - 1.8 GPa	58 - 261 ksi	Average 0.61 GPa; Grad Count = 1
Flexural Modulus	0.5 - 0.7 GPa	72.5 - 102 ksi	Average 0.52 GPa; Grad Count =
Compressive Yield Strength	10 - 15 MPa	1450 - 2180 psi	Average 14.4 MPa; Grad Count=
Poisson's Ratio	0.46	0.46	Grad Count =
Shear Strength	5 MPa	725 psi	Grad Count =
Izod Impact, Notched	1.6 J/cm	3 ft-lb/in	Grad Count =
Izod Impact, Notched Low Temp	0.8 J/cm	1.5 ft-lb/in	Grad Count =
Charpy Impact, Unnotched	NB	NB	Grad Count =
Charpy Impact, Notched	0.5 J/cm ²	2.38 ft-lb/in ²	Grad Count =
Tensile Impact Strength	670 kJ/m ²	319 ft-lb/in ²	Grad Count =
Coefficient of Friction	0.06 - 0.1	0.06 - 0.1	Average 0.07; Grad Count=2
Limiting Pressure Velocity	0.063 MPa-m/sec	1800 psi-ft/min	Grad Count =

Electrical Properties

Electrical Resistivity	1e+011 - 1e+018 ohm-cm	1e+011 - 1e+018 ohm-cm	Average 7e+1 ohm-cm Grad Count = 3
Surface Resistance	1e+011 - 1e+018 ohm	1e+011 - 1e+018 ohm	Average 5E+1 ohn

			Grad Count = 1
Dielectric Constant	2.1	2.1	Grad Count = 2
Dielectric Constant, Low Frequency	2.1	2.1	Grad Count = 2
Dielectric Strength	18 - 105 kV/mm	457 - 2670 kV/in	Average 58. kV/mm Grad Count = 2
Dissipation Factor	0.0001 - 0.0003	0.0001 - 0.0003	Average 0.0002; Grad Count = 2
Dissipation Factor, Low Frequency	0.0001 - 0.0003	0.0001 - 0.0003	Average 0.0002; Grad Count = 2
Arc Resistance	300 sec	300 sec	Grad Count=
Thermal Properties			
CTE, linear -100°C	86 µm/m-°C	47.8 µin/in-°F	Grad Count=
CTE, linear 20°C	79 - 150 µm/m-°C	43.9 - 83.3 µin/in-°F	Average 100 µm/n °C; Grad Count=1
CTE, linear 100°C	100 - 140 µm/m-°C	55.6 - 77.8 µin/in-°F	Average 140 µm/n °C; Grad Count=1
CTE, linear 250°C	170 - 220 µm/m-°C	94.4 - 122 µin/in-°F	Average 190 µm/n °C; Grad Count=1
Specific Heat Capacity	1.2 - 1.4 J/g-°C	0.287 - 0.335 BTU/lb-°F	Average 1.4 J/g-l Grad Count =
Thermal Conductivity	0.24 - 0.35 W/m-K	1.67 - 2.43 BTU-in/hr-ft²-°F	Average 0.27 W/n K; Grad Count = 3
Melting Point	330 °C	626 °F	Grad Count =
Maximum Service Temperature, Air	260 - 290 °C	500 - 554 °F	Average 260°C Grad Count = 3
Deflection Temperature at 0.46 MPa (66 psi)	73 °C	163 °F	Grad Count=

Deflection Temperature at 1.8 MPa (264 psi)	45 - 100 °C	113 - 212 °F	Average 56.1°C Grad Count=
Minimum Service Temperature, Air	-200 °C	-328 °F	Grad Count =
Flammability, UL94	V-0	V-0	Grad Count = 2
Oxygen Index	95 %	95 %	Grad Count = 1

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